SITE SPECIFIC ALTERNATIVE PRACTICE
CHECKLIST ENVIRONMENTAL ASSESSMENT

Project Name:	Harley Creek Fuel Mitigation Project
Proposed Implementation Date:	January 1, 2009
Proponent:	USFS ~ Kings Hill District
Location:	Section 25, T14N, R7E & Section 30, T14N, R8E
County:	Meagher
Land Owner:	USFS
HRA #:	N/A

I. TYPE AND PURPOSE OF ACTION

A. **Type of Action: SMZ Alternative Practice:**

Proponent is requesting an SMZ Alternative Practice to Rule 4:(36.11.304), *Operation of Equipment in the SMZ.*

USFS is proposing a fuel mitigation project adjacent Harley Creek off Highway 89, near Neihart, Montana. The proponent would like to operate a loader in the SMZ at two locations to fully suspend logs across Harley Creek, removing approximately two loads of rough forest products.

B. **Purpose of Action: Timber Harvest**

Proponent has put forth a fuel mitigation project to mitigate wildfire impacts to cabin sites along Harley Creek. The objective of this action is to create defensible space around each cabin with selective tree removal, and to reduce the fuel hazard by thinning along the power line corridor.

To reduce skid-trail/road construction, the use of a loader at two locations in the SMZ to fully suspend logs across Harley Creek is being proposed. Impacts to the bed and banks should be minimal as equipment operation will take place above the OHWM on flat stable ground. The proposed light treatments should produce little ground disturbance and only minor (if any) sediment delivery to the streams.

II. PROJECT DEVELOPMENT

1. PUBLIC INVOLVEMENT, AGENCIES, GROUPS OR INDIVIDUALS CONTACTED:

Provide a brief chronology of the scoping and ongoing involvement for this project.

As part of their Environmental Impact Statement (EIS) for this project, the USFS has extensively sought public involvement as well as internal input from biologist and other resource professionals on staff.

2. OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED:

Other permits if needed shall be the responsibility of the USFS.

3. ALTERNATIVES CONSIDERED:

3.1 Alternative "A": Not approve Alternative Practice (No Action)

Proposed SMZ Alternative Practice would not be approved. Current fuel load conditions would most likely increase in this canyon putting the cabin sites at risk to wildfire.

3.2 Alternative "B": Alternative as Proposed

Allow Alternative Practice to operate equipment in the SMZ, Rule 4: (36.11.304) as proposed with additional mitigation measures.

Equipment Operation: To reduce skid-trail/road construction, the use of a loader at two locations in the SMZ to fully suspend logs across Harley Creek is being proposed. Impacts to the bed and banks should be minimal as equipment operation will take place above the OHWM on flat stable ground. Operations would take place during dry ground conditions to prevent soil rutting and sediment runoff. If disturbed soil does occur, areas impacted would be seeded with native grass seed.

III. IMPACTS ON THE PHYSICAL ENVIRONMENT

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

4. GEOLOGY AND SOIL QUALITY, STABILITY AND MOISTURE:

Consider the presence of fragile, compactable or unstable soils. Identify unusual geologic features. Specify any special reclamation considerations. Identify any cumulative impacts to soils.

Harvest operations should be done during dry ground conditions to prevent rutting. Degradation to the soil should be minimal due to the relatively small amount of forest products being cut in the SMZ. Mitigation measures such as grass seeding exposed soil areas should reduce the potential of sediment runoff.

5. WATER QUALITY, QUANTITY AND DISTRIBUTION:

Identify important surface or groundwater resources. Consider the potential for violation of ambient water quality standards, drinking water maximum contaminant levels, or degradation of water quality. Identify cumulative effects to water resources.

Is it possible that implementing this Alternative Practice would impact the integrity of the SMZ and these specific functions?

1. Ability to act as an effective sediment filter.
2. Ability to provide shade to regulate stream temperature.
3. Protection of stream channel and banks.
4. Ability to provide large woody debris for eventual recruitment into the stream to maintain riffles, pools and other elements of channel stability.
5. Promotes floodplain stability.

The proposed project would be implemented during dry ground conditions and should not adversely impact the six functions of a SMZ, as identified in the SMZ law (77-5-301[1] MCA).

1. Harvest operation would take place during dry ground conditions to prevent soil rutting. Because of this and the small amount of wood being harvested, minimal disturbance to the soil is expected. If soil displacement would happen, the area in question would be grass seeded immediately following the harvest to reestablish vegetation.

2. Equipment operation at two locations along stream channels would only be allowed on flat stable ground above the OHWM.

3. Ample tree volume shall be maintained to provide future recruitment into stream channel to maintain riffles, pools, and other element of channel structure by maintaining the minimum tree retention requirement for salvage.

Fisheries Repot provided by Michael Enk, Fisheries Biologist USFS:

United States Department of Agriculture **Forest Service** **Lewis and Clark National Forest Forest Supervisor Office**

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File Code: 1950/2630 **Date:** January 18, 2007
Route To: Monarch/Neihart Hazardous Fuels Reduction Project (CE)

Subject: Fisheries and Aquatics Report

To: Tina Lanier, Belt Creek District Ranger
From: Michael Enk, Fisheries Biologist

Fisheries Issues

The primary concern is that the proposed action will increase sediment delivery or otherwise change habitat conditions (water yield, water temperature, woody debris recruitment, etc.) in streams which support fish populations, especially westslope cutthroat trout (WCT), a sensitive species and primary MIS for fisheries on the LCNF. With the exception of lower Dry Fork of Belt Creek and lower

Carpenter Creek, all named perennial streams in the project area support healthy coldwater fisheries which may include rainbow trout, brook trout, brown trout, cutthroat trout, hybrid trout, mountain whitefish and mottled sculpin (Table 1). However, only Crawford Creek, Harley Creek and O'Brien Creek support significant populations of native WCT in reaches potentially affected by the proposed treatment units. The fisheries report will discuss risks to all fish habitats but will focus special attention on potential effects to WCT streams.

The Forest Service and Montana Fish, Wildlife and Parks are working in close partnership to actively protect and restore the remaining populations of genetically-intact WCT in the Belt Creek drainage. However, non-native trout species are firmly and irreversibly established in mainstem Belt Creek and many tributaries. Competition, predation and hybridization from these species effectively preclude the re-establishment of a viable, connected population of WCT in the Belt Creek basin. Our goal instead is to improve viability of WCT in numerous protected tributaries distributed throughout the drainage. Up-to-date monitoring information for all WCT streams is provided in Moser et al. (2006).

Table 1: Summary of Fisheries Habitat in Project Area

Stream	Fish Species Present
Lower Dry Fork Belt Creek	Rainbow and brook trout (populations limited by historic mining pollution)
Rafferty Creek	Rainbow, hybrid, brook and brown trout; mottled sculpin
Lower Hoover Creek	Rainbow, hybrid, and brook trout; mountain whitefish; mottled sculpin
Crawford Creek	Westslope cutthroat trout (restored population)
Harley Creek	Westslope cutthroat, hybrid and brook trout
Graveyard Creek	Westslope cutthroat, hybrid and brook trout
Lower Carpenter Creek	No fish due to historic mining pollution
O'Brien Creek	Westslope cutthroat, rainbow, hybrid and brook trout
Shorty Creek	Westslope cutthroat and hybrid trout (limited habitat)
Belt Creek	Rainbow, cutthroat, hybrid, brook and brown trout; whitefish; mottled sculpin

Direct and Indirect Effects

Ground disturbance associated with the proposed treatments may generate sediment movement and possible delivery to stream channels, but most units are well-buffered from streams and pose little or no risk of significantly increasing sediment loads to waterways (see Hydrology Report); likewise, no significant change in timing or amount of runoff is predicted for these treatments, which represent only 1-9% of their individual watersheds. The potential for effects on fisheries habitats is further reduced by helicopter yarding, hand treatments, and lack of new road construction or stream crossings. Only minor or short term changes in woody debris recruitment to fishery streams is expected, due to unit location, implementation of Streamside Management Zone rules with tree retention requirements, and very limited extent of stream canopy alteration. No significant changes in water temperature or nutrient input are expected that would exceed natural variation under typical successional processes (e.g., fire, windthrow, flood) for forest community types in the project area. When put into the perspective of a naturally-dynamic environment to which aquatic organisms have adapted, the magnitude of effects from the proposed fuels treatments are comparatively small. Any exceptions to these general effects will be discussed in the stream-specific sections below.

Dry Fork Belt Creek

Fish populations in the reach of the Dry Fork potentially affected by Unit 1 are severely limited by natural dewatering and intermittent discharges of mining-related pollution from the upper basin. The fishery consists principally of migratory rainbow and brook trout from Belt Creek. Downslope sediment movement could increase by 38% from the treatment area, with low potential for delivery to the stream. No effect on the fishery is expected.

Crawford Creek

This stream is the site of an ongoing westslope cutthroat trout (WCT) restoration project. A fish barrier was completed about 1000 feet upstream from the mouth in 2005, and removal of non-native and hybridized trout was accomplished in late summer 2006. Genetically-pure native WCT are expected to recolonize the stream from an isolated population in the headwater reach. Brook, rainbow and hybridized WCT from Belt Creek will likely recolonize the short section of Crawford Creek below the fish barrier.

Although units 6A and 6B are located on slopes near the lower reach of Crawford Creek, most downslope sediment movement is expected to be toward Belt Creek. A small part of Unit 6C drains towards Crawford Creek but the potential for sediment delivery is believed to be low. Any increase in sediment load would be small and would impact only the lowermost quarter-mile of stream habitat. The effect on fisheries is expected to be minor and temporary, and would not interfere with WCT restoration efforts in this creek.

Harley Creek and Graveyard Creek

Harley Creek sustains a genetically-pure population of WCT in the upper reach, including the portion of stream in the project area. However, this population is not protected from hybridization with rainbow trout from Belt Creek. Graveyard Creek supports a genetically-pure population of WCT protected by a small waterfall several hundred feet upstream from the project area.

Units 8A and 8B are primarily ridge-top broadcast burns over 1300 feet away from Harley Creek with no surface connection to the stream; therefore, no effect on fish habitat is expected. Unit 7 encompasses the recreational cabins along Harley Creek, including those near the mouth of Graveyard Creek. The objective is to create defensible space around each cabin with selective tree removal, and to reduce the fuel hazard by thinning along the power line corridor. The proposed light treatments should produce little ground disturbance and only minor (if any) sediment delivery to the streams. The additional use of Harley Creek road may temporarily increase sediment runoff into the stream, a risk that can be mitigated by restricting commercial use to dry periods only. Although selective tree removal around the cabins may alter the stream canopy in a few places, it will not be significant enough to affect water temperature due to topographic shading, deciduous bank vegetation and strong groundwater influences in the drainage. Future woody debris recruitment to the channel could be reduced in the project area, but again, this is not expected to significantly affect fish habitat due to the limited area of treatment. Harley and Graveyard creeks should continue to provide good habitat for WCT.

O'Brien Creek

The dam and impoundment on O'Brien Creek for Neihart's municipal water supply function as a fish barrier that protects upstream WCT from the threat of hybridization and competition with non-native trout. Another fish barrier in the form of a natural waterfall about two miles upstream from the

impoundment provides further protection from non-native fish to WCT in O'Brien Creek's headwaters.

Units 11A and 14A border the lower reach of O'Brien Creek downstream from WCT habitat. Both units involve hand treatments with relatively little ground disturbance and 100-150 foot stream buffers. No significant sediment delivery is expected from Unit 11A; after treatment, there could be a 16% increase in downslope sediment movement from Unit 14A, with a low probability of delivery to O'Brien Creek. Any potential effect on fish habitats would be temporary and minor. The core WCT population, which is upstream from the treatment zone, would not be affected.

Belt Creek and Unnamed Tributaries

Belt Creek in the project area supports three species of non-native trout (rainbow, brook and brown), cutthroat-rainbow hybrid trout, and an occasional WCT from tributary populations. The fishery is impaired by intermittent pulses of mining pollution from past activities in the Dry Fork and Carpenter Creek drainages, and by high sediment loads from winter sanding of Highway 89.

None of the potential sediment increases from proposed treatments in named tributaries discussed previously are large enough to significantly affect fish habitat in Belt Creek. Units 1, 6A, 6B, 6C, 9, 10A, 10B, 10C, 10D, 11B, 19, 20 and 23 are located in unnamed tributary basins or border Belt Creek's floodplain, and therefore could contribute directly or indirectly to sediment loads in Belt Creek itself. However, only the treatments in Units 6A, 9 and 10A have a moderate to high probability of resulting in sediment delivery to Belt Creek, according to the hydrologic analysis. The proximity of Unit 6A to Belt Creek creates the potential for sediment delivery, but the amount would be too small to affect fish habitat in a stream the size of Belt Creek. However the Units 9 and 10A units are located on opposing steep slopes of an unnamed perennial stream west of Neihart. There is an insufficient buffer zone at the toe of the slopes to capture sediment potentially mobilized by the ground disturbance associated with the proposed broadcast burning. This increase in sediment could adversely affect fish habitat in Belt Creek for a short distance below the tributary mouth, but given the flushing power of Belt Creek's typical spring runoff flows, the effect on fisheries would likely be temporary and very localized.

Cumulative Effects

The potential for significant cumulative effects of past, present and reasonably foreseeable actions on fish habitats and fish populations was evaluated by considering the hydrologic analysis, grazing impacts, mining pollution, recreation impacts and other human influences in the upper and middle Belt Creek watershed. The cumulative effects section of the hydrologic analysis for this project focused on roads, timber harvests and fire; the proposed actions were determined to have no significant cumulative effects on their respective watersheds because disturbance thresholds would not be exceeded.

The lack of significant effect on fish habitats expected from the proposed action greatly diminishes any potential for cumulative effects. The treatments are not designed or located in areas where they would exacerbate grazing, mining or other human-caused disturbances to fish habitats. Grazing impacts to fish habitats in upstream reaches of Dry Fork, Rafferty and Crawford creeks have been noted in

previous analyses, but these effects are greatly moderated before reaching the project area and there is no evidence to suggest a significant cumulative effect with this project. Although fisheries in the Belt Creek drainage have suffered from past activities and continue to be impacted by mining-related pollution, grazing, roads and other human uses, the proposed treatments do not, by themselves or cumulatively, threaten the viability of any fish species. With appropriate fishing regulations, improved grazing practices, ongoing remediation of mining-damaged areas, and active protection or restoration of WCT populations in numerous tributaries, fisheries resources are expected to improve in the Belt Creek basin.

Amphibians

There are no known amphibian breeding sites in the project area, but reproduction of Columbia spotted frogs is likely occurring in wetland sites along Belt Creek. A western toad was observed in 2002 near Harley Park (about two miles from the project area boundary) in a wetland complex where Columbia spotted frogs are known to breed. Columbia spotted frogs have also been observed along Belt, Smoke-in-the-hole and Jefferson/Chamberlain creeks. Northern leopard frogs are not known to occur in the project area and their distribution on the Lewis and Clark National Forest does not typically overlap with Columbia spotted frogs.

Foraging western toads can range into upland habitats and may be present in or near some of the units during various fuel treatments. Therefore, the proposed actions may affect individual amphibians but will not cause any lasting adverse effects to the riparian habitats their populations depend on. In some areas, thinning and burning may actually create vernal pools of standing water suitable for amphibian breeding due to decreased evapotranspiration rates. Canopy openings can also allow solar warming of these pools which improves their suitability as breeding sites. There is no reason to believe that the treatments will adversely affect amphibian populations in the project area, and likewise no reason to expect any cumulative effects with other activities.

Mitigation

Modifications and other measures recommended in the Water Resources Report to reduce potential sediment delivery to streams would also lower any potential risk to fisheries habitat. For example, increasing the buffer width between Belt Creek and Unit 6A would reduce the possibility of sediment delivery and any potential impacts on aquatic habitats. Careful adherence to BMPs, especially the avoidance of equipment operation in streamside management zones and isolated wetlands, would help ensure that all aquatic habitats are protected. Truck and equipment traffic on Harley Creek Road for Unit 7 treatments should be restricted to dry conditions to avoid increasing sediment delivery to the stream.

Sensitive Species Determinations

Based on the preceding analysis, the determination for WCT is that the project may impact individuals or habitat but will not likely contribute to a trend towards federal listing or cause a loss of viability to the
population or species. The determination for western toad is that the project may impact individuals or habitat but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. Due to their apparent absence in the project area, northern leopard frogs should experience no impact.

MICHAEL ENK
Forest Fisheries Biologist

References

Moser, David; Tews, Anne; Enk, Michael. 2006. Northcentral Montana Cooperative Westslope Cutthroat Trout Restoration Project – 2005 Annual Report. Montana Dept. Fish Wildlife & Parks, Great Falls, MT.

6. AIR QUALITY:
What pollutants or particulate would be produced? Identify air quality regulations or zones (e.g. Class I air shed) the project would influence. Identify cumulative effects to air quality.

None.

7. VEGETATION COVER, QUANTITY AND QUALITY:
What changes would the action cause to vegetative communities? Consider rare plants or cover types that would be affected. Identify cumulative effects to vegetation.

Implementation of these alternatives practices with proposed mitigation measures should not dramatically impact any vegetative communities within the SMZ.

8. TERRESTRIAL, AVIAN AND AQUATIC LIFE AND HABITATS:
Consider substantial habitat values and use of the area by wildlife, birds or fish. Identify cumulative effects to fish and wildlife.
Would implementing this Alternative Practice impact the ability of the SMZ to support diverse and productive aquatic and terrestrial habitats?

Implementation of this alternative practice in and of itself should not dramatically impact aquatic and terrestrial habitats.

9. UNIQUE, ENDANGERED, FRAGILE OR LIMITED ENVIRONMENTAL RESOURCES:
Consider any federally listed threatened or endangered species or habitat identified in the project area. Determine effects to wetlands. Consider Sensitive Species or Species of special concern. Identify cumulative effects to these species and their habitat.

None.

10. HISTORICAL AND ARCHAEOLOGICAL SITES:
Identify and determine effects to historical, archaeological or paleontological resources.

None.

11. AESTHETICS:
Determine if the project is located on a prominent topographic feature, or may be visible from populated or scenic areas. What level of noise, light or visual change would be produced? Identify cumulative effects to aesthetics.

None.

12. DEMANDS ON ENVIRONMENTAL RESOURCES OF LAND, WATER, AIR OR ENERGY:
Determine the amount of limited resources the project would require. Identify other activities nearby that the project would affect. Identify cumulative effects to environmental resources.

None.

13. OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA:
List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.

None.

IV. IMPACTS ON THE HUMAN POPULATION

- *RESOURCES potentially impacted are listed on the form, followed by common issues that would be considered.*
- *Explain POTENTIAL IMPACTS AND MITIGATIONS following each resource heading.*
- *Enter "NONE" If no impacts are identified or the resource is not present.*

14. HUMAN HEALTH AND SAFETY:
Identify any health and safety risks posed by the project.

None.

15. INDUSTRIAL, COMMERCIAL AND AGRICULTURE ACTIVITIES AND PRODUCTION:
Identify how the project would add to or alter these activities.

None.

16. QUANTITY AND DISTRIBUTION OF EMPLOYMENT:
Estimate the number of jobs the project would create, move or eliminate. Identify cumulative effects to the employment market.

None.

17. LOCAL AND STATE TAX BASE AND TAX REVENUES:
Estimate tax revenue the project would create or eliminate. Identify cumulative effects to taxes and revenue.

None.

18. DEMAND FOR GOVERNMENT SERVICES:
Estimate increases in traffic and changes to traffic patterns. What changes would be needed to fire protection, police, schools, etc.? Identify cumulative effects of this and other projects on government services.

None.

19. LOCALLY ADOPTED ENVIRONMENTAL PLANS AND GOALS:
List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.

None.

20. ACCESS TO AND QUALITY OF RECREATIONAL AND WILDERNESS ACTIVITIES:
Identify any wilderness or recreational areas nearby or access routes through this tract. Determine the effects of the project on recreational potential within the tract. Identify cumulative effects to recreational and wilderness activities.

None.

21. DENSITY AND DISTRIBUTION OF POPULATION AND HOUSING:
Estimate population changes and additional housing the project would require. Identify cumulative effects to population and housing.

None.

22. SOCIAL STRUCTURES AND MORES:
Identify potential disruption of native or traditional lifestyles or communities.

None.

23. CULTURAL UNIQUENESS AND DIVERSITY:
How would the action affect any unique quality of the area?

None.

24. OTHER APPROPRIATE SOCIAL AND ECONOMIC CIRCUMSTANCES:
Estimate the return to the trust. Include appropriate economic analysis. Identify potential future uses for the analysis area other than existing management. Identify cumulative economic and social effects likely to occur as a result of the proposed action.

None.

EA Checklist Prepared By:	**Name:**	Shawn P. Morgan	**Date:**	11/05/2008
	Title:	Helena Unit Forester		

V. FINDING

25. ALTERNATIVE SELECTED:

ALTERNATIVE AS MITIGATED: Approve alternative practice to (1) allow operation of equipment in the SMZ during periods of dry ground conditions at two locations.

The following mitigation measures are recommended:

1. Equipment operation will take place above the OHWM on flat stable ground.
2. Operating period would be during periods of dry ground conditions to prevent soil rutting.

3. Disturbed or exposed soil would be grass seeded to provide a vegetative filter to trap sediment.

26. SIGNIFICANCE OF POTENTIAL IMPACTS:

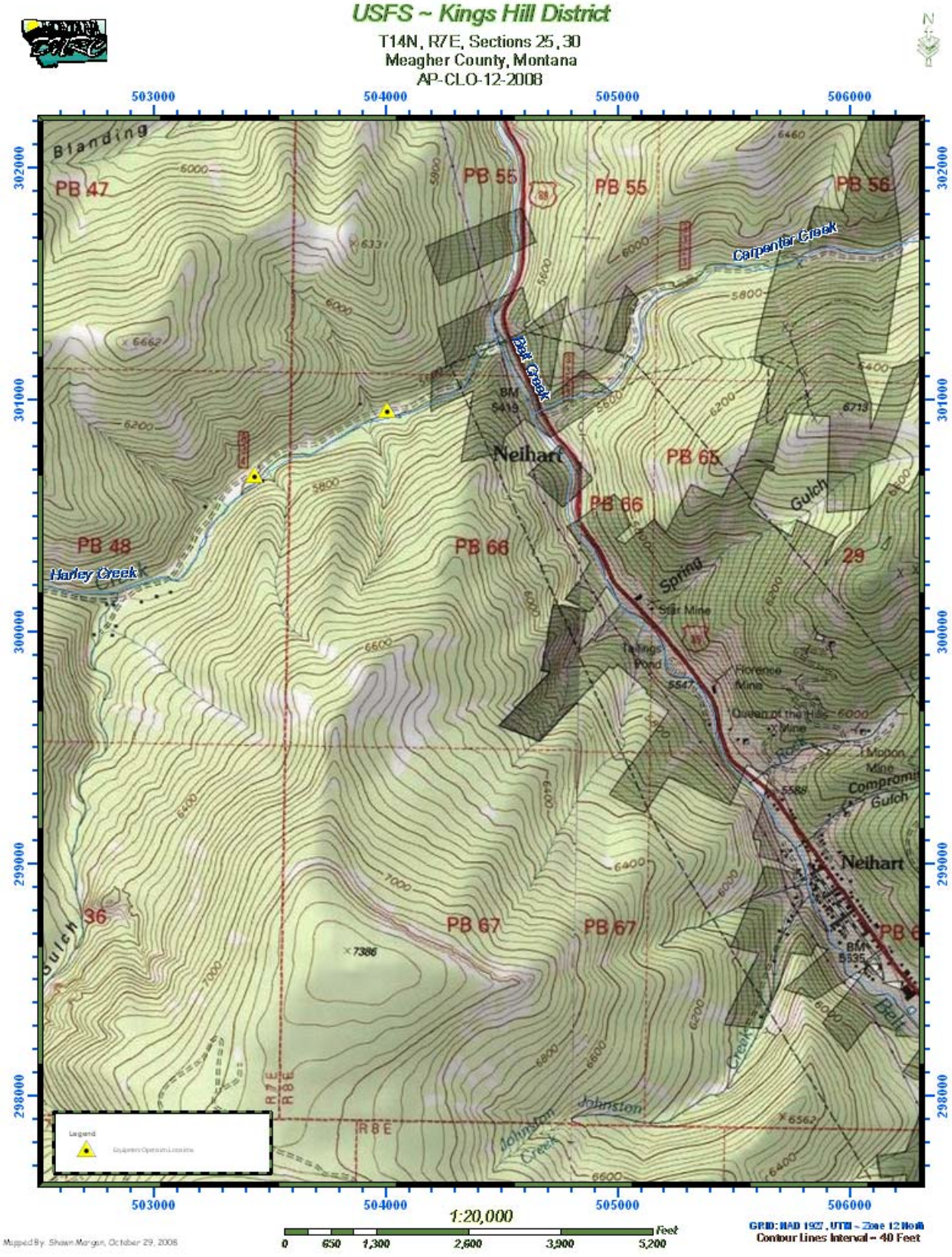
Measures Recommended To Mitigate Potential Impacts: None expected. See Section 25 of this document, mitigation measures.

27. NEED FOR FURTHER ENVIRONMENTAL ANALYSIS:						
		EIS		More Detailed EA	**X**	No Further Analysis

EA Checklist Approved By:	**Name:**	D.J. Bakken		
	Title:	DNRC, Helena Unit Manager		
Signature:	/s/ Darrel J. Bakken		**Date**:	11/6/2008

ATTACHMENTS

SMZ Alternative Practice Map


USFS ~ Kings Hill District
T14N, R7E, Sections 25, 30
Meagher County, Montana
AP-CLO-12-2008
503000
504000
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302000
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300000
299000
298000
Blanding
PB 47
PB 55
PB 56
Carpenter Creek
Belt Creek
BM 5419
Neihart
PB 65
PB 66
Gulch
PB 48
Harley Creek
Spring
29
Star Mine
Tailings Pond
5547
Florence Mine
Queen of the Hills Mine
Mippon Mine
Compromise Gulch
5589
Neihart
Gulch 36
PB 67
7386
BM 5535
R7E
R8E
Johnston Creek
6562
Legend
1:20,000
0 650 1,300 2,600 3,900 5,200 Feet
Mapped By: Shawn Morgan, October 29, 2008
GRID: NAD 1927, UTM - Zone 12 North
Contour Lines Interval = 40 Feet